

## POWER SUPPLY 1-PHASE, 12 V DC DIMENSION C SERIES, GENERATION 2

CP5.121  
PSU 100-240V ac I/P 12V dc 10A 120W O/P

- Output current of 16 A
- Up to 94% efficiency
- Only 39 mm wide
- Active current inrush protection



### Product description

Puls Dimension C-series stands for cost optimization without compromising quality, reliability or performance.

CP10 is the second generation C-series 1-phase that sets new records by using the latest technology and sophisticated thermal design. With an efficiency of 94.3%, the power losses are very small and thus the width is reduced down to 39 mm. The efficiency is also very high at lower loads which is the normal operating condition. The mean value is on the whole 93.3% at 230 V ac.

Power boost of 20% enables higher current extraction without voltage drops. This is especially useful during start-ups and to bridge the current peaks in the application. The power reserve can be used continuously up to + 45°C and short periods from +45°C to +60°C.

**Short-circuit currents.** CP10 can provide short circuit current which is 3 times the nominal current for at least 12 ms, which helps secondary fuses and achieve selectivity. For more information see under Sec. fuses.

### Hiccup<sup>Plus</sup>

With Pulse new short circuit technology ensures optimum protection. The unit leaves a very high short circuit that solves secondary fuses and provide sufficient starting current for example dc motors. If the output voltage drops below 6.5 V dc, a continuous current of 25 A is given for 2 seconds, then turn the assembly of the end to make a new restart attempt after about 18 seconds. This is done until the error has been corrected. This feature ensures a high short-circuit / overload current while avoiding a constant high current that can lead to thermal problems with cables and component damage.

**More technical advantages.** CP10 has active power factor correction (PFC) and actively protect inrush that effectively reduces start currents which are ideal if several units are connected in the same phase or if the supply is current limited through example. AC UPS. The protection is always active, regardless of the temperature. DC-OK output, wide temperature range, a large number of approvals and transient filter which ensures operation in an interference rich electrical environment makes the unit suitable for virtually all installations. CP10.121 also has an input where the signal turns off the unit.

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### Wiring

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A: Primary side/control voltage  
 B: Secondary. Output voltage  
 C: potentiometer adjustable output voltage 12-15 V dc  
 D: DC OK LED. Lights when the voltage is 90% of the set value  
 E: DC-OK relay output. Closes when the output voltage is OK  
 F: Inputs for remote shutdown of the unit

## Sec. fuses

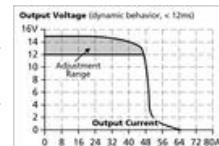
Breakers is the most common type of fuse for ac voltage but is also used for dc voltages. Power supply always has a current limitation compared with an electricity network which hampers tripping of a circuit breaker of the magnetic field, especially if the voltage is as low as 12 V dc. Greater consideration must be given to the cable diameter and cable lengths. This even if the power supply is able to deliver high short circuit currents. For long cables and/or thin cable area so the solution is electronic fuses.

Puls CP10.121 have high short-circuit currents which enables tripping within 10 ms of length and cable section is as below specification.

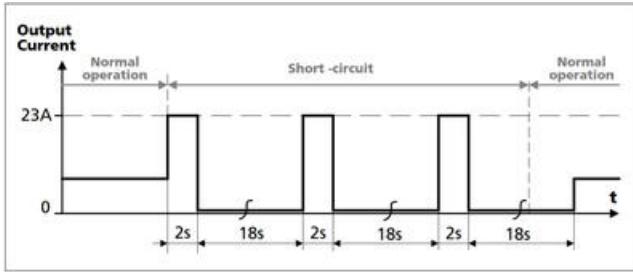
Safe tripping of circuit breakers with different cable lengths/diameter

Short-circuit currents. Figure 3-2

|       | 0.75 mm <sup>2</sup> | 1.0 mm <sup>2</sup> | 1.5 mm <sup>2</sup> | 2.5 mm <sup>2</sup> |
|-------|----------------------|---------------------|---------------------|---------------------|
| C-2A  | 11 m                 | 15 m                | 22 m                | 35 m                |
| C-3A  | 9 m                  | 13 m                | 18 m                | 23 m                |
| C-4A  | 5 m                  | 8 m                 | 12 m                | 17 m                |
| C-6A  | -                    | 1 m                 | 2 m                 | 3 m                 |
| B-6A  | 6 m                  | 11 m                | 15 m                | 23 m                |
| B-10A | 2 m                  | 3 m                 | 3 m                 | 4 m                 |
| B-13A | 1 m                  | 2 m                 | 3 m                 | 4 m                 |



Hiccup function Fig 3-3



#### Description of Hiccup <sup>plus</sup> function

Thanks to the unique Pul Hiccup<sup>plus</sup> ensures a high short circuit current while avoiding the risk of overheated cables and damage to the connected loads. When a short circuit occurs following.

1. High peak power that enables tripping in 12 ms Figure 3-2.
2. The unit leaves 25 A for 2 s.
3. After 2 seconds the unit shuts off, then try to restart every 18 seconds. If the fault is removed, the unit starts automatically, otherwise it will lose further 18 s. The operation does not burden the cabling and does not cause damage to the electronics.

#### Specifications

|  |  |
|--|--|
| <b>Active Transient</b>                              | Yes                                      |
| <b>Approvals</b>                                     | ATEX, CE, cULus, IECEx, IEC 62368-1:2018 |
| <b>DC relay output</b>                               | Yes                                      |
| <b>Depth</b>   | 102                                      |
| <b>Effect</b>  | 120                                      |
| <b>Efficiency At 120 V AC, full load. Typical</b>    | 93.2                                     |
| <b>Efficiency At 230 V AC, full load. Typical</b>    | 94                                       |
| <b>Efficiency At 230 V AC. Typical</b>               | 92.3                                     |
| <b>Height</b>  | 124                                      |
| <b>Hold-up time at 120 V AC, full load. Typical.</b> | 35                                       |
| <b>Hold-up time at 230 V AC, full load. Typical.</b> | 35                                       |
| <b>Input current at 230 V ac typical</b>             | 4  |
| <b>Input voltage AC</b>                              | 100-240 V                                |
| <b>Input voltage ac max</b>                          | 264                                      |
| <b>Input voltage ac min</b>                          | 85                                       |
| <b>Input voltage DC</b>                              | 110-150 V                                |
| <b>Input voltage dc max</b>                          | 180                                      |
| <b>Input voltage dc min</b>                          | 88                                       |

|   |             |
|---|-------------|
| <b>Input voltage range</b>                          | Wide-range  |
| <b>Inrush current at 120 V ac typical</b>           | 4           |
| <b>IP Class</b>                                     | IP20        |
| <b>Lifetime at 120 V ac, full load and +40 ° C</b>  | 94000       |
| <b>Lifetime at 230 V ac, full load and +40 ° C</b>  | 110000      |
| <b>Number of phases</b>                             | 1           |
| <b>Output Current</b>                               | 10          |
| <b>Output voltage</b>                               | 12          |
| <b>Output voltage max</b>                           | 15          |
| <b>Output voltage min</b>                           | 12          |
| <b>Power Consumption At 120 V AC</b>                | 1.09        |
| <b>Power Consumption At 230 V AC</b>                | 0.6         |
| <b>Power Factor at 120 V AC, full load. Typical</b> | 0.98        |
| <b>Power Factor at 230 V AC, full load. Typical</b> | 0.91        |
| <b>Power Reduction Of 60 To 70 ° C</b>              | 3           |
| <b>Ripple. max</b>                                  | 50          |
| <b>Series</b>                                       | Dimension C |
| <b>Supply Frequency</b>                             | 50-60 ±6 %  |
| <b>Temperature Range Without Derating From</b>      | -25         |
| <b>Temperature Range Without Derating To</b>        | 60          |
| <b>Weight</b>                                       | 0.44        |
| <b>Width</b>  | 32          |

